Toxics Steering Group
Michigan Department of Environmental Quality
2008 Annual Report

MEMBERS (2008)

Shannon Briggs, WB, MDEQ
Christina Rose Bush, MDCH
Dennis Bush, Chair, WB, MDEQ
Gary Butterfield, AQD, MDEQ
Mike Depa, AQD, MDEQ
Linda Dykema, MDCH
Christine Flaga, RRD, MDEQ
Kay Fritz, WHMD, MDEQ
Jennifer Gray, MDCH
Kory Groetsch, MDCH
Mary Lee Hultin, AQD, MDEQ
Deb Mackenzie-Taylor, WHMD, MDEQ
Amy Perbeck, WB, MDEQ
Lisa Quiggle, MDCH
Divinia Ries, RRD, MDEQ
Margaret Sadoff, AQD, MDEQ
Amy Salisbury, RRD, MDEQ
Robert Sills, AQD, MDEQ
Catherine Simon, AQD, MDEQ
Eric Wildfang, RRD, MDEQ

I. INTRODUCTION

The Toxics Steering Group (TSG) provides a forum for the discussion of issues related to the assessment of human health risks associated with exposures to contaminants in the environment. The TSG also facilitates the development of scientifically defensible recommendations to relevant State of Michigan (State) department managers, fosters consistency of risk assessment methodologies within the Michigan Department of Environmental Quality (MDEQ) and between State agencies, and helps to minimize the duplication of effort. TSG subcommittees are formed when particularly complex risk assessment issues need to be resolved. All toxicologists within the MDEQ and the Division of Environmental Health of the Michigan Department of Community Health (MDCH) are TSG members. This report describes the activities of individual members of the TSG and subcommittees that have furthered the goals of the TSG.

II. SUMMARY OF THE TSG SUBCOMMITTEE ACTIVITIES IN 2008

Children's Environmental Health Subcommittee (CEHS):

Chairperson: Mary Lee Hultin, Air Quality Division (AQD)

Members: Amy Perbeck, Water Bureau (WB)
Amy Salisbury, Remediation and Redevelopment Division (RRD)
Mike Depa, AQD
Christina Bush, MDCH

CEHS staff have participated in the Greater Grand Rapids Children's Environmental Health Initiative (GGRCEHI), which includes numerous partners such as neighborhood, local, county, state, tribal, and federal agencies and private organizations. The overall goal of the GGRCEHI is to achieve a more holistic approach to children's environmental health through promotion and realization of healthier homes and surrounding environments. On February 12, 2008, staff assisted the United States Environmental Protection Agency (USEPA) and the GGRCEHI in conducting a teacher training for a school chemical cleanout. Two collections encompassing 8

counties were involved and 12,000 pounds of chemicals were collected from schools, resulting in a significant decrease in exposure risk to children in those schools.

The GGRCEHI will implement programs that identify and reduce or eliminate risks to children in urban Grand Rapids. As part of the GGRCEHI, staff provided outreach and education materials for reducing exposure to toxic substances at a number of outreach events, particularly targeted toward families with low incomes and/or families with children living in areas where environmental health problems occur. Staff assisted in the development of an environmental assessment tool for use with these families.

The CEHS chairperson was involved with the Michigan Clean Diesel Initiative (MiCDI) and gave a presentation on the health effects (particularly to children) of diesel exhaust to the full MiCDI group in February. The chairperson also worked on an air quality permit application for an oil refinery expansion in which the company agreed to retrofit Detroit Public School buses with diesel exhaust emission reduction equipment.

Manganese (Mn) Particulate Soil Inhalation Criteria (PSIC) Subcommittee

Chairperson: Kay Fritz, Waste and Hazardous Materials Division (WHMD)
Members: Christina Bush, MDCH
Divinia Ries, RRD
Robert Sills, AQD

Ad Hoc Members:
Deborah Mackenzie-Taylor, WHMD
David Mason, AQD
David Slayton, WHMD

The purpose of this subcommittee is to evaluate the methodology used to derive the Mn PSIC for Michigan, especially for the Detroit area, to ascertain if the values are appropriate or if revisions may be justified.

This subcommittee completed the following in 2008:

1. Final evaluation and justification for removing the Particulate Emission Factor (PEF) adjustment factor (PEF/2 portion of the PSIC algorithm) for Mn.

2. Final evaluation and justification for recommending the use of the Aermic Dispersion Model instead of the previously used Industrial Source Complex Short Term Version 3 model.

3. Final list of documents for the Mn Reference Concentration/Initial Threshold Screening Level review. Also key studies were identified and summarized.

4. Final summary of relevant Mn data from the Detroit area.

5. Draft recommendation for changes to the vehicle emission calculation in the Part 201 generic PSIC algorithm.

6. Draft summary of the comparison of Mn cleanup standards (comparable to the Part 201 generic PSIC) between states and USEPA regions.

7. Draft recommendation for inclusion of the Relative Source Contribution factor into the generic PSIC algorithm.

The completion of the Mn PSIC report is planned for early 2009.

Polybrominated Diphenyl Ethers (PBDE) Subcommittee

Chairperson: Christine Flaga, RRD
Members: Dennis Bush, WB
Kory Groetsch, MDCH
Deborah Mackenzie-Taylor, WHMD
Catherine Simon, AQD

This subcommittee finalized its report in May 2008. The original report was released in January 2004 and an updated draft was released in 2007. Comments received in 2007 were incorporated into the report; a letter notifying stakeholders of the finalized report was sent on August 1, 2008. No comments have been received on the final report. This subcommittee has been disbanded.

III. ACTIVITIES

TSG Participation in Earth Day Activities

On April 19, 2008, the TSG members returned to teach various aspects of environmental toxicology to the over 2,000 elementary school students attending the 2008 Earth Day celebration at Constitution Hall. Participants entering the "Risky Business III" room used a fishing game to learn about the State's mercury fish consumption advisory, identified asthma triggers and lead hazards in home environments, learned the concepts of dose and susceptibility, and observed aquatic insects used in acute toxicity testing, among others.

IV. TRAINING

Brown Bag Seminar Series

The monthly Brown Bag seminar series continued to develop as a means to provide TSG members with an open forum for the review and discussion of new and innovative issues and advances in the science of toxicology, risk assessment, and other relevant environmental themes. These informal discussions have allowed a more detailed level of discussion than time constraints permit during the formal TSG meetings. Topics presented during the 2008 Brown Bag seminar series included a discussion of environmental education, conference presentation rehearsals, children's lead exposure models, and TSG Earth Day activity planning. The Brown Bag seminar organizers, Eric Wildfang and Amy Perbeck, continue to seek out relevant topics and speakers proposed by TSG members.

2008	Presenter	Topic
Jan	Tom Occhipinti	Environmental Education
Feb	All	TSG Earth Day planning
Mar	Amy Perbeck and Joy Taylor-Morgan	PBT presentation rehearsal
May	All	TSG Earth Day recap
Jun	Bob Sills	Children's lead exposure
Jul	Paul Stamets	TED video webinar - bioremediation
Sep	Shannon Briggs	Beaches 101 presentation rehearsal
Oct	Eric Wildfang	ERNIE Toxicology Module
Nov	Eric Wildfang	Journal review

Webinars, Workshops, Presentations, and Conferences Attended by the TSG Members

- "Perchlorate Risk Assessment" – Interstate Technology and Regulatory Council Webinar
- "Acrylamide Risk Assessment" - USEPA Science Advisory Board Conference Call
- "Mutagenic MOA Carcinogens: How High is the Burden of Proof?" – Society of Toxicology (SOT) Risk Assessment Specialty Section (RASS) Webinar
- "An Internal Approach to the Risk Assessment of PFOA - a Biopersistent Chemical" - DuPont Presentation
- "Integration of Pharmacokinetic (PK) and Pharmacodynamic (PD) Modeling of Arsenic to Inform the Risk Assessment Process" - EPA Webinar
- "Neurotoxicology for the Disinterested Scientist" – Agency for Toxic Substances and Disease Registry (ATSDR) Webinar
- "Toxic Responses of the Kidney" - ATSDR Webinar
- Great Lakes Botulism Coordination Workshop
- Pharmaceuticals in the Environment Workshop
- Toxicology and Risk Assessment Conference (TRAC) - EPA-NIOSH-DOD
- 47th Annual Meeting of the Society of Toxicology
- Annual Meeting on Innovative Science and Technology for Mitigating Human, Ecological and Environmental Risks - Superfund Basic Research Program
- "Translating Research into Regulation" – Center for Environmental Health Sciences Chairperson Presentation
- "Toxicity Testing in the 21st Century: A Vision and a Strategy" - Hamner Institutes Programs related to Implementing Recommendations
- "Determining a Mutagenic Mode of Action" - Rita Schoeny Presentation
- "Pb NAAQS Human Health Risk Assessment—Overview of Design and Implementation"
- "Health Effects of Air Pollutants: What Animal Studies Tell Us That Supports and Expands What We Have Learned from Human Studies" - Dan Costa Presentation
- "Pesticides and Health I: A Practical Approach to Pesticide Illness: Recognition, Management and Reporting Pesticide Illness" - UC Davis Health System Webinar
- "Pesticides and Health II: A Practical Approach to Pesticide Illness: Chronic Neurologic Effects" - UC Davis Health System Webinar
- "Pesticides and Health III: A Practical Approach to Pesticide Illness: Reproductive Hazards" - UC Davis Health System Webinar

- "Pesticides and Health IV: A Practical Approach to Pesticide Illness: Cancer" - UC Davis Health System Webinar

- "Integrating Risk Analysis and Communication" - MSU Seminar

- "Systems Toxicology of Engineered Nanomaterials" - MSU Seminar

- "Health Risk Assessment of Essential Metals" workshop - University of Ottawa, Canada

- "Bioavailability – Metals", "Bioavailability – Organic Compounds", and "Bioavailability – Use at Hazardous Waste Sites" - EPA Webinars

- "Dioxin Toxicity: Mechanisms, Models, & Potential Health Risks" - MSU Seminar

V. FUTURE NEEDS AND RECOMMENDATIONS OF THE TSG

The TSG recognizes that budget constraints and other departmental priorities may delay or preclude the following requests. However, it is necessary to acknowledge that in order to continue to incorporate the best available science in our recommendations and assessments, the TSG members must be able to keep their expertise honed, as the field of risk science continues to evolve.

In order to fulfill our mission and to better serve and protect the public, the TSG members would like to see more emphasis placed on joint training and coordination of information and knowledge dissemination. Continuation of the TSG Brown Bag series is one step toward this goal. Training could also be in the form of in-house training by outside experts, the purchase of educational CDs/DVDs, online courses, or "train the trainer" type education where staff are approved for travel to key conferences/seminars, then bring knowledge back to the group. Examples include training in the following key risk science principles:

- **Physiologically Based Pharmacokinetic (PBPK) modeling**. The use of PBPK models in risk assessments prepared by outside groups such as the USEPA and the regulated community is steadily increasing. At a minimum, all TSG staff should have sufficient knowledge to review these outside assessments. In addition, the TSG should have core staff trained to use PBPK modeling when conducting in-house risk assessments, where applicable.

- **Epidemiology and probabilistic risk assessment** for the reasons stated above. The TSG recognizes the need for an epidemiologist and/or biostatistician in conducting and evaluating human health risk assessments. To reduce costs, these positions could be shared among the divisions. A similar shared funding arrangement is in place for the librarian service within the MDEQ. The RRD previously had a statistician on staff. This position remains open. The MDEQ is currently contracting out for this service.

As the application of updated methodologies (e.g., the benchmark dose methodology and probabilistic risk assessment) become the standard in risk assessment, the need for a biostatistician becomes critical in interpreting data and model outputs. The TSG will evaluate the potential application of such a position and if there is a critical need in one or all divisions for one. Also, the TSG members will attempt to identify specific instances where having a departmental biostatistician could have reduced or eliminated delays in review time, prevented the contracting of outside assistance, or improved upon and added support to toxicologist recommendations.